

### **REMARKS**

This responds to the Advisory Office Action mailed on October 5, 2006. By this response, claim 32 was amended. No claims were cancelled. Claims 72 and 73 were added.. As a result, claims 32-37, 39-45, 69, 70, 72 and 73 are now pending in this application. Applicant respectfully requests reconsideration of the application in view of the following remarks and the above amendments.

#### **§103 Rejection of the Claims**

**A. Rejection:** Claims 32-37, 39-45, 69 and 70 were rejected under 35 USC § 103(a) as being unpatentable over Crockett et al. (U.S. 2002/0100612).

**B. Response:** In order for the Examiner to establish a prima facie case of obviousness, three base criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference or references must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. M.P.E.P. § 2142 (citing *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed.Cir. 1991)).

Claim 32, as now amended, recites "A method comprising: forming a via in a substrate; removing a portion of the via in the substrate to form a first via portion and a second via portion; and forming an electrical component in the via in the substrate." The Crockett et al. reference fails to teach or suggest removing a portion of the via in the substrate to form a first via portion and a second via portion, as now recited in claim 32. Crockett et al. is appears to be directed toward placing a capacitor device within a via in a circuit board "...to suppress impedance and/or save space." (see paragraph [0001] of Crockett et al.). Furthermore, according to the Summary section of the Crockett et al. reference, "The problems outlined above may at least in part be solved in some embodiments by embedding an electrical component within a via of the printed

circuit board to reduce the impedance within the reference path and/or saving space within the printed circuit board.” (See paragraph [0007] of Crockett et al.) Similar language also appears in the Detailed Description of the Crockett et al. reference (See end of paragraph [0018] of Crockett et al.) The Examiner argues that Crockett et al. teaches forming an electrical component within a via (see page 3 of the Office Action dated August 1, 2006). The Crockett et al. reference’s solution is directed toward components or a device for impedance matching or reduction rather than a memory device or a memory portion of the claimed invention. The components generally used to reduce or match impedance are capacitors and resistors. Resistors are used to match loads to which a transmission line is attached and capacitors are used to shift the phase of such transmission lines. The components shown in Crockett et al. are various cylindrical capacitors or slight variations on cylindrical capacitors as shown and discussed in FIGs. 3A, 3B, and 3C. Each capacitor shown includes a via that includes a continuous conductive lining, a continuous insulative lining and a cylindrical center conductive portion. None of the components are formed by removing a portion of the via in the substrate to form a first via portion and a second via portion. The components of the Crockett et al. reference are not formed by any removing step, much less removing a portion of the via in the substrate to form a first via portion and a second via portion, as is now claimed. As a result, the prior art reference fails to teach or suggest all the claim limitations.

The Examiner also fails to set forth a reason for modifying the impedance matching or reduction device of Crockett et al. reference to yield applicant’s claimed invention. It seems that removing a portion of the via to form a device would increase the complexity of the process taught by Crockett et al. for forming components within the via. As a result, the rejection of claim 32 is now overcome the Examiner’s rejection under 35 USC § 103(a) as being unpatentable over Crockett et al. (U.S. 2002/0100612).

Claims 33- 37 and 39-44 depend from claim 32 and include the limitation of claim 32 by their dependency. Therefore, claims 33- 37 and 39-44 also overcome the Examiner’s rejection under 35 USC § 103(a) as being unpatentable over Crockett et al. (U.S. 2002/0100612).

Independent claim 45 recites “A method comprising: forming a via in a substrate; and forming at least a portion of a transformer within the via.” The Examiner sets forth the same argument as set forth with respect to claim 32. However, there is no mention of a transformer in

the Crockett et al. reference. Without even a mention of a transformer, there is no basis for the modification of the Crockett et al. reference from a capacitor to a transformer. This seems especially true in light of the fact that Crockett et al. is directed toward reducing or matching impedance and is directed to forming a capacitor within a via. Accordingly, the rejection of claim 45 is now overcome the Examiner's rejection under 35 USC § 103(a) as being unpatentable over Crockett et al. (U.S. 2002/0100612).

Claim 69 recites a capacitor made of curved plate portions "...wherein the distance between the first curved plate portion and the second curved plate portion vary." There does not appear to be a similar structure taught in Crockett et al.

Claim 70 recites a capacitor made of curved plate portions "...wherein the first curved plate portion and the second curved plate portion are portions of a via formed by insulating the first portion of a via from a second portion of a via." Again, there does not appear to be a similar structure taught by Crockett et al.

In addition, the Examiner rejected claims 32-37, 39-45, 69 and 70 based solely on the Crockett et al. reference. Applicant respectfully traverses the single reference rejection under 35 U.S.C. § 103 since not all of the recited elements of the claims are found in the Crockett et al. reference. Since all the elements of the claim are not found in the Crockett et al. reference, Applicant is concerned that the Examiner may be taking official notice of the missing elements. Applicant respectfully objects to any taking of official notice with a single reference obviousness rejection and, pursuant to M.P.E.P. § 2144.03, Applicant respectfully traverses any assertion of Official Notice and requests that the Examiner cite a reference or references in support of this position.

**C. Rejection:** Claims 42-44 and 69-70 were rejected under 35 USC § 103(a) as being unpatentable over Crockett et al. (U.S. 2002/0100612) in view of Figueroa et al. (U.S. 6,446,317).

**D. Response:** In order for the Examiner to establish a prima facie case of obviousness, three base criteria must be met. First, there must be some suggestion or motivation, either in the

references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference or references must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. M.P.E.P. § 2142 (citing *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed.Cir. 1991)).

Claims 42-44 depend from claim 32 and include the limitations of claim 32 by their dependency. The Crockett et al. reference fails to teach removing a portion of the via in the substrate to form a first via portion and a second via portion, as now recited in claim 32. The Figuerora et al. reference also fails to teach this aspect of the invention. As a result, claims 42-44 overcome the Examiner's rejection for the same reasons as set forth above since neither Crockett et al. or Figuerora et al., when combined, teach removing a portion of the via in the substrate to form a first via portion and a second via portion, as now recited in claim 32.

Claim 69 recites "...forming a first curved plate portion; and forming a second curved plate portion spaced from the first curved plate portion, wherein the distance between the first curved plate portion and the second curved plate portion vary." (Emphasis added) The structure of Crockett et al. fails to teach a first curved plate portion and a second curved plate portion or the structure where the distance between the plates varies. The structure of Crockett et al. shows a lined via (tubular in shape) with a cylindrical or somewhat cylindrical core. Figuerora et al. shows a similar structure (FIG. 4 of Figuerora is a cross sectional view of such a structure). Therefore, neither reference shows a capacitor made of two curved plates. Even if one was somehow able to successfully argue that a tubular structure is a first curved plate, the cylindrical core or somewhat cylindrical core could not be equated to the second curved plate. Simply put, the combination of Crockett et al. and Figuerora et al. falls short of the structure of claim 69. There appears to be no reason stated for modifying these references to that of the claimed invention. As a result, claim 69 overcomes the rejection under 35 USC § 103(a) as being unpatentable over Crockett et al. (U.S. 2002/0100612) in view of Figueroa et al. (U.S. 6,446,317).

Claim 70 recites forming a first curved plate portion; and forming a second curved plate portion spaced from the first curved plate portion, wherein the first curved plate portion and the second curved plate portion are portions of a via formed by insulating the first portion of a via from a second portion of a via.” This recitation is similar to the recitation in claim 69. The arguments set forth above with respect to claim 69 are equally applicable to this claim. Accordingly, claim 70 overcomes the rejection under 35 USC § 103(a) as being unpatentable over Crockett et al. (U.S. 2002/0100612) in view of Figueroa et al. (U.S. 6,446,317).

Conclusion

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney at (612) 373-6977 to facilitate prosecution of this application.


If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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